

Atty Dkt. No.: 10992204-1  
USSN: 09/499,962

## REMARKS

### Formal Matters

Claims 1-30 are pending.

Claims 1-30 were examined and rejected.

Claim 1, 10, 18, 20, 25, 26 and 30 are amended. The amendments were made solely in the interest of expediting prosecution, and is not to be construed as an acquiescence to any objection or rejection of any claim. Support for the amendments is found in the claims as originally filed, and throughout the specification, in particular page 3, lines 20-21 and Fig. 1, which shows a TOF mass spectrometer. Accordingly, no new matter is added.

Applicants respectfully request reconsideration of the application in view of the remarks made herein.

### Allowable subject matter

The Applicants note that claims 18 and 25 are not subject to any of the rejections set forth in this Office Action and are thereby deemed to be allowable.

Claims 18 and 25 have been re-written to be in independent form.

The Applicants respectfully request that claims 18 and 25 be indicated as allowed in the next communication from the Office.

### This Office Action should be a non-final Office Action

The instant Office Action is indicated as being a *Final* Office Action.

However, the Applicants note that claim 30 is newly rejected under 35 U.S.C. § 102 over Umemura. This is a new ground of rejection neither *necessitated* by an amendment to claim 30 or information submitted in an IDS.

Since this new ground of rejection was not *necessitated* by an amendment or information submitted in an IDS, pursuant to §706.07(a)<sup>1</sup> the Applicants respectfully submit that the Office Action is improperly indicated as a Final Office Action.

<sup>1</sup> As indicated in MPEP §706.07(a), a second or any subsequent action on the merit shall be made final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement (IDS) filed during the period set forth in 37 C.F.R. §1.97(c).

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In view of the foregoing discussion, the Applicants respectfully request that the finality of this Office Action be withdrawn.

**Rejection under 35 U.S.C. § 102 - Umemura**

Claim 30 is rejected under 35 U.S.C. 102(b) as being anticipated by Umemura (USPN 5,399,865). The Applicants respectfully traverse this rejection.

The Applicants respectfully submit that Umemura's disclosure relates to a liquid metal ion source, not a reflectron time of flight mass spectrometer, as required by the instant claims.

This rejection may be withdrawn on this basis alone.

Further, the Applicants respectfully submit that Umemura does not disclose any apparatus containing a plate having a groove and a shielding plate covering the groove, also required by claim 30.

The Office Action argues that a plate, groove and shielding plate is disclosed in Umemura's Fig. 15, col. 15 lines 15-25, col. 6 lines 10-25 and 40-45 and col. 15 line 49-55.

However, no groove can be seen in Fig. 15. The Examiner is respectfully requested to point out a groove in Fig. 15 if this rejection is to be maintained.

Further, col. 15 lines 15-25, col. 6 lines 10-25 and 40-45 (reproduced below) do not even mention a plate, a groove, or a shielding plate.

col. 15 lines 15-25:

wire ends is respectively connected to one of said other 15  
end portions of said feed through terminals.

5. A liquid metal ion source as set forth in claim 3,  
wherein said emitter is separated from said reservoir by  
a space extending in a radial direction perpendicular to  
an axis of said emitter, said space being in a range from 20  
0.2 mm to 2 mm.

6. A liquid metal ion source as claimed in claim 1,  
wherein said emitter support terminal is centrally posi-  
tioned between the feed through terminals.

7. A liquid metal ion source as claimed in claim 1, 25

col. 6 lines 10-25

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10 through terminals due to vapor deposition of the ion  
 material for preventing a resultant short life of the ion  
 source.

A fifth object of the invention is to provide a high  
 temperature cleaning apparatus for cleaning the emitter  
 15 and the reservoir in a high vacuum.

The first, second and third objects of the present  
 invention are accomplished as set forth in the following,  
 with reference to the description of the components of  
 the preferred embodiments.

20 (i) Tubular Reservoir

As described, the hairpin type LMIS in which a wire  
 is bent and an emitter is spot-welded to the V-shaped tip  
 end of the bent wire is not suitable for use in a long  
 continuous ion emission operation. A structure that will  
 25 not impede the flow of a liquid ion material is prefera-

col. 6 lines 40-45

40 Taking into account that the emitter and the reservoir  
 are cleaned at a high temperature and in an extra high  
 vacuum, and that the ion material is charged in situ, the  
 reservoir should preferably function as an electron  
 source for electron bombardment of the emitter.

45 (ii) Electrical Insulation Between the Emitter and the

Finally, col. 15 line 49-55 (reproduced below) does not describe what is being  
 claimed because it does not describe a base plate containing a groove and a shield covering  
 the groove. Umemura's col. 15 line 49-55 merely describes a vapor deposition shield  
 including two shield portions each containing a groove. This is not what is being claimed.

13. A liquid metal ion source as claimed in claim 12,  
 wherein said vapor deposition shield includes two 50  
 shield portions having facing groove portions for re-  
 ceiving the electric feed through terminals and emitter  
 support terminal, respectively, said shield portions sur-  
 rounding the feed through and emitter support termi-  
 nals to shield the base plate from the reservoir. 55

The Applicants respectfully submit that the claimed an arrangement of elements is not  
 disclosed, taught, or fairly suggested by Umemura.

In view of the foregoing discussion, the Applicants respectfully submit that this  
 rejection may be withdrawn.

### **Rejection under 35 U.S.C. § 102 - Jarrell**

Claims 1-6, 8-17, 20-24 and 26-28 are rejected under 35 U.S.C. § 112(e) as being  
 anticipated by Jarrell (6,525,314).

The Applicants respectfully submit that Jarrell's disclosure relates to a triple  
 quadrupole mass spectrometer containing an ion filter 15, a collision cell 17 and a fragment  
 filter 18. Jarrell's mass spectrometer is *not* a time of flight mass spectrometer because there is  
 no time of flight tube and no ion reflector, for example. Accordingly, Jarrell fails to teach an  
 element of the claims: a base for mounting components of a time of flight mass spectrometer.

This rejection may be withdrawn on this basis alone.

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The Applicants further submit that one of skill in the art would not look towards Jarrell's disclosure for guidance on how to mount components of a reflectron time of flight mass spectrometer because the requirements for accurate alignment of components in Jarrell's device is virtually non-existent, as compared to the requirements for accurate alignment of components of a time of flight mass spectrometer. In other words, the movement of Jarrell's ions through Jarrell's mass spectrometer employs confining electric fields produced by quadrupole devices 15, 17 and 18. In Jarrell's system, if the trajectory of an ion is off axis by several degrees, the trajectory of the ion will be corrected by an electric field of one of the quadrupole devices. In contrast, no such electric fields or quadrupole devices exist in a time of flight mass spectrometer, and if the trajectory of an ion in such a device is off axis by as little as a fraction of a degree, the ion may not make it to the detector. One of skill in the art would not look at a system in which there is no requirement for accurate alignment of components for ideas about how to accurately align components in a device in which accurate alignment of components is essential (i.e., in a time of flight mass spectrometer)

In view of the foregoing discussion, withdrawal of this rejection is respectfully requested.

**Rejection under 35 U.S.C. § 103(a) - Jarrell**

Claims 7, 19, and 28-30 are rejected under 35 U.S.C. 103(a) as unpatentable in view of Jarrell (USPN 5,399,865). The Applicants respectfully traverse this rejection.

The Applicants respectfully submit that Jarrell's disclosure relates to a triple quadrupole mass spectrometer containing an ion filter 15, a collision cell 17 and a fragment filter 18. Jarrell's mass spectrometer is *not* a time of flight mass spectrometer because there is no time of flight tube and no ion reflector, for example. Accordingly, Jarrell fails to disclose, teach or fairly suggest an element of the claims: a base for mounting components of a time of flight mass spectrometer.

This rejection may be withdrawn on this basis alone.

Further, as discussed in greater detail above, one of skill in the art would not look towards Jarrell's disclosure for guidance for how to mount components of a time of flight

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mass spectrometer because the requirements for accurate alignment of components in Jarrell's device is virtually non-existent, as compared to the requirements for accurate alignment of components of a time of flight mass spectrometer.

Accordingly, one of skill in the art would not readily adapt the teachings of Jarrell to a time of flight mass spectrometer.

Finally, the Applicants submit that the Office has merely stated, without giving any reasoning or factual support, that the claimed subject matter would be obvious in view of Jarrell's disclosure. Jarrell neither discloses a plate containing a groove and a shielding plate covering the groove, nor suggests that such a device would be desirable. The Applicants cannot fully respond to such a rejection. The Applicants respectfully request that the Office further explain this rejection in the next Office Action, if the rejection is to be maintained.

In view of the foregoing discussion, withdrawal of this rejection is respectfully requested.

**Rejection under 35 U.S.C. § 103(a) - Andersen**

Claims 1-4 and 10 remain rejected under 35 U.S.C. 103(a) as being obvious in view of Anderson. The Applicants respectfully traverse this rejection.

As discussed in greater detail in the General Discussion section in the response to the prior Office Action, none of the references cited in the prior Office Action, including Andersen, disclose, teach or fairly suggest (explicitly or inherently) any kind of a platform that can provide for optical alignment of components of an ion optics system within acceptable tolerances, without further adjustment, as required by the rejected claims.

In view of the foregoing discussion, withdrawal of this rejection is respectfully requested.

**Rejection under 35 U.S.C. § 103(a) - Drew**

Claims 10, 20 and 26 are rejected under 35 U.S.C. 103(a) as being obvious in view of Drew. The Applicants respectfully traverse this rejection.

Drew's apparatus, like Jarrell's apparatus, is not a time of flight mass spectrometer. A time of flight mass spectrometer containing the mounting plate of claim 1 is simply not disclosed, taught or fairly suggested by Drew.

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Further, the Applicants respectfully submit that one of skill in the art would not look towards Drew's disclosure for guidance for how to mount components of a time of flight mass spectrometer because Drcw's device, like Jarrell's device, does not contain any components that require such stringent alignment as a time of flight mass spectrometer.

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**CONCLUSION**

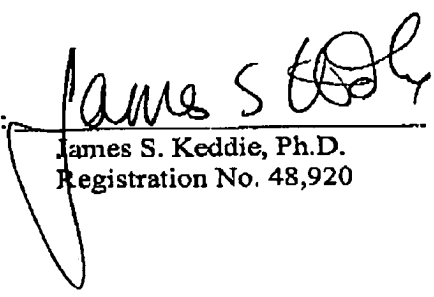
The applicants respectfully submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone Timothy Joyce at 650 485 4310. The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 which may be required by this paper, or to credit any overpayment, to Deposit Account No. 50-1078.

Respectfully submitted,

Date: \_\_\_\_\_

10/25/04

By: \_\_\_\_\_

  
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